

REMARKS

Claims 1-13 are currently pending in the application. Claim 10 has been amended by changing “are” to “is” at line 2 to correct an informality. Claim 13 has been amended to add the phrase “said business process being represented as a state machine running on said computing system” at lines 2-3. Support for such amendment may be found in the Specification at page 4, lines 11-19. No new matter has been added.

The Claimed Invention

The claimed invention provides methods, a system, and computer program products for allowing flexible creation and alteration of business processes within a commerce system, and using state machines to describe actions that can be taken by particular roles at particular points in a process. A state machine according to the claimed invention provides three basic functions as follows:

1. Before a command is executed, the state machine checks whether it is valid to execute the command given the current state of the business process.
2. After a command is executed, the state machine supplies a list of commands which can be executed next. This list can be returned as a set of options (for example, as a web page) to the user with the appropriate button/links to the valid commands.
3. The state machine provides a formal mechanism for specifying and executing complex (including interrelated) business processes.

(Specification, page 10, lines 11-17) State machines according to the claimed invention may be used by a commerce system to enforce validity of user actions, to track the execution of actions within an instance of the business process, to provide the user interface with a list of actions available to a user working on an instance of the business process, to provide coordination between state machines, and to allow different organizations to have varied business processes.

Business processes may be created and modified in accordance with the claimed invention by changing, adding, and/or removing states and transitions from the state machine representation of the business processes using tools such as a graphical user interface (GUI) 401. GUI 401 can be used to view and edit a graphical representation of a state machine representing a business process. Once the process designer has modified the graphical representation, the system converts 411 the newly depicted state machine into an XML representation 402. In one alternative embodiment of the invention, a process designer editor can create an XML representation 402 of the process directly using standard editing tools. In another embodiment, the state machine creation tool represented as GUI 401 can be implemented to directly enter the state machine representation into commerce flow engine 421. The commerce flow uses its state machine table to control the business process. It is the function of commerce flow engine 421 to store and execute the state machine representation of the process thus created, including management of process user inputs. When the process designer compiles the newly created or modified process, the resulting state machine is loaded for storage in state machine storage 403. When a user works on a business process, a state machine is retrieved from 403. The particular state machine retrieved from storage 403 depends on the business process, and may depend upon the identity of the client 406, or other variable criteria.

Claims 12-13 have been rejected under 35 U.S.C. § 101 “for failing to define a concrete, useful, and tangible result.” (Office Action at 8) Applicants respectfully traverse on the basis that the representation or execution of business processes, as claimed by Claims 12-13, constitutes a concrete, useful, and tangible result, as discussed below.

Claims 1-13 have been rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,343,275 to Wong in view of U.S. Patent No. 5,799,285 to Klingman. Applicants respectfully traverse, and request reconsideration, on the basis that a combination of Wong and Klingman is not obvious and would not result in Claims 1-13, as discussed below.

Rejection of Claims 1-13 Under 35 U.S.C. § 101

Independent Claims 12 and 13 have been rejected as not directed to patentable subject matter. In this regard, the Patent Act provides:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. § 101. Applicants respectfully traverse the rejection, and request reconsideration, on the basis that Claims 12-13 are within the statutory requirements of patentability.

Claim 12 is directed to “representing a business process within a computing system” (Claim 12, lines 1-2), and Claim 13 of the claimed invention is directed to “executing a business process within a computing system.” (Claim 13, lines 1-2) As a result, the Examiner was incorrect in finding that the claims “fail[] to define a concrete, useful and tangible result.” (Office Action at 8) Both the representation of a business process (as in Claim 12) and the execution of a business process (as in Claim 13) constitute concrete, useful, and tangible results.

Applicants thus respectfully submit that Claims 12 and 13 are directed to patentable subject matter and should be allowed.

Rejection of Claims 1-13 Under 35 U.S.C. § 103(a)

Claims 1-13 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Wong in view of Klingman. Applicants traverse on the basis that a combination of Wong and Klingman would not be obvious and that such a combination, if made, would not result in Claims 1-13.

The Examiner’s incorrect finding that a combination of Wong and Klingman would be obvious is based on the following passage from the disclosure of Klingman:

It is therefore a principal object of the present invention to provide a secure commercial transaction system that uses state-of-the-art computer telcom to provide secure selling capability of goods.

(Klingman, column 3, lines 8-11, cited in the Office Action at 2, ¶ 2; at 6, ¶ 6; at 4, ¶ 7; at 5, ¶ 11; at 6, ¶ 12; and at 7, ¶¶ 13 and 14 ) Because Wong does not teach transaction security or computer telecommunications, it would not be obvious to combine Wong and Klingman for those purposes, as the Examiner has proposed.

In addition, the Examiner was therefore incorrect in finding that a combination of Wong and Klingman, if made, would result in the claimed invention. Claims 1-13 claim use of state machines to represent business processes, while neither Wong nor Klingman suggests use of state machines, as that term is ordinarily and customarily understood and as that term is explained in the Specification.:

The state machine in accordance with the invention provides three basic functions:

1. Before a command is executed, the state machine checks whether it is valid to execute the command given the current state of the business process.
2. After a command is executed, the state machine supplies a list of commands which can be executed next. This list can be returned as a set of options (for example, as a web page) to the user with the appropriate button/links to the valid commands.
3. The state machine provides a formal mechanism for specifying and executing complex (including interrelated) business processes.

(Specification, page 10, lines 10-17)

The Examiner's finding that Wong suggests use of a state machine is simply incorrect. Wong does not provide any discussion of a "state machine."

The Examiner's finding that Klingman suggests a state machine is also incorrect. The only discussion in Klingman which even arguably covers a "state machine" is the heading "The Auto Soft 'Sell' State Machine" (Klingman, column 16, line 22), which teaches that "[t]hese steps would be done by the software that would be incorporated in the EKOM system" (Klingman, column 16, lines 40-41) and does not teach (1) checking whether a command is valid prior to execution, (2) following execution, supplying a list

of commands to be executed next, or (3) providing a formal mechanism for specifying and executing complex (including interrelated) business processes. (See Specification, page 10, lines 11-17) Thus, Klingman's discussion of "The Auto Soft 'Sell' State Machine" is a reference to execution of a software process and not to a state machine, either as that term is ordinarily and customarily understood in the art or as the term is explained in the Specification of the claimed invention. See M.P.E.P. § 2111.01.

To the extent the Examiner's rejection under 35 U.S.C. § 103(a) may turn on an implicit assumption that features of Wong or Klingman are equivalent to the state machine of the claimed invention, Applicants respectfully traverse on the basis that such assumptions are made in an area of esoteric technology without support by citation of any reference work. See M.P.E.P. § 2144.03, citing *In re Ahlert*, 424 F.2d 1088, 1091, 165 U.S.P.Q. 418, 422-21 (C.C.P.A. 1970). It is, in fact, plainly incorrect to find that the state machine of Claims 1-13 is equivalent to the database employed by Wong or the processes employed by Klingman, which is what the Examiner appears to have done. Additional grounds for traversal are discussed below.

Claim 1. In rejecting Claim 1, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where Wong teaches "using a computing model based on a single integrated database management system" (Wong, Abstract, cited by the Examiner in the Office Action at 2, ¶ 2), Claim 1 claims:

A method for representing a business process within a computing system, comprising the steps of:

defining the business process using a state-machine based representation where transitions of the state machine represent roles and actions, and states of the state machine represent stages in the business process where the commerce system is waiting for an event to occur;

identifying the actions that participants with particular roles can perform at particular stages of the business process by corresponding state in the state machine and out-going transitions from that state.

(Claim 1, lines 1-9) The portions of Wong cited by the Examiner in support of rejecting Claim 1 discuss use of a database rather than a state machine and therefore do not suggest Claim 1. Wong does not teach anything to suggest states or transitions from states as in Claim 1.

The Examiner, recognizing that Wong does not suggest Claim 1, seeks to rely on Klingman, as well. Klingman, however, teaches the provision of secure communications for the purpose of electronically providing products to a distributor for sale in the open market. (Klingman, column 1, lines 19-23) The portion of disclosure of Klingman relied on by the Examiner in rejecting Claim 1 describes the use of a software process rather than a state machine. (Klingman, Figure 2; Klingman, column 9, line 64 – column 12, line 6). Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 1.

Claim 2. In rejecting Claim 2, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where the passages of Wong cited by the Examiner do not include any discussion of state machines, Claim 2 expressly claims use of a state machine:

The method of claim 1, further comprising altering the business process by changing its state-machine based representation.

(Claim 2, lines 1-2) Wong does not teach anything to suggest “altering the business process by changing its state-machine based representation” as in Claim 2. Applicants respectfully submit that neither Wong nor Klingman teaches the use of a state machine to represent business processes as claimed by Claim 2.

Claim 3. In rejecting Claim 3, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where the passages of Wong cited by the Examiner do not include any discussion of state machines, Claim 3 expressly claims use of a state machine:

The method of claim 1, wherein attributes of a state-machine based representation are tailored to a particular user.

(Claim 3, lines 1-2) Wong does not teach anything to suggest “wherein attributes of a state-machine based representation are tailored to a particular user” as in Claim 3.

Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 3.

Claim 4. In rejecting Claim 4, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where the passages of Wong cited by the Examiner do not include any discussion of state machines, Claim 4 expressly claims use of a state machine:

The method of claim 1, wherein the state-machine based representation includes means for validating that actions taken by a user are allowed by the state machine description so as to ensure that the user has a role that can perform the requested action at that state.

(Claim 4, lines 1-4) Wong does not teach anything to suggest “wherein the state-machine based representation includes means for validating that actions taken by a user are allowed by the state machine description so as to ensure that the user has a role that can perform the requested action at that state” as in Claim 4. Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 4.

Claim 5. In rejecting Claim 5, the Examiner, recognizing that Wong does not suggest Claim 5, has relied on Klingman to teach “passing messages between applications.” (Office Action at 6) The passages of Klingman cited by the Examiner, however, does not include any discussion of state machines, just as Wong does not teach state machines as discussed above. Claim 5, by contrast, expressly claims use of a state machine:

The method of claim 1, wherein the business processes and their state-machine based representations can be synchronized with other business processes by passing messages between state machines.

(Claim 5, lines 1-3) Thus, even if Klingman is viewed as teaching “passing messages between applications” (Office Action at 6) without the use of a state machine, there would be no basis on which to find that Klingman suggests Claim 5, either alone or in combination with Wong.

Claim 6. In rejecting Claim 1, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where Wong teaches “using a computing model based on a single integrated database management system” (Wong, Abstract, cited by the Examiner in the Office Action at 4, ¶ 7), Claim 6 claims:

A method for executing a business process represented as a state machine running on a computing system, where transitions of the state machine represent roles of participants in the business process and actions that can be taken as part of the business process, and states of the state machine represent stages in the business process where the business process is waiting for an event to occur, the method comprising:

receiving from a user a command representing a desired action to be performed as part of the business process;

checking the role of the user within the business process and a context in which the command occurs;

if the command is allowable by a user with the role within the context, executing the command.

(Claim 6, lines 1-11) The portions of Wong cited by the Examiner in support of rejecting Claim 6 discuss use of a database rather than a state machine and therefore do not suggest Claim 6. Wong does not teach anything to suggest states or transitions from states as in Claim 6.

The Examiner, recognizing that Wong does not suggest Claim 6, seeks to rely on Klingman, as well. Klingman, however, teaches the provision of secure communications for the purpose of electronically providing products to a distributor for sale in the open market. (Klingman, column 1, lines 19-23) The portion of disclosure of Klingman relied

on by the Examiner in rejecting Claim 6 describes secure communication using a 900 number with the caller ID feature enabled (Klingman, column 10, lines 24-46, cited in the Office Action at 4) without consideration of a state machine. Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 6.

Claim 7. Claim 7 claims use of a state machine by virtue of its dependency on Claim 6:

The method of claim 6, further comprising the step of displaying to users a list of possible commands to be issued by the user as part of the business process.  
(Claim 7, lines 1-2) In addition, Claim 7's claim of "displaying to users a list of possible commands to be issued by the user as part of the business process" directly relates to one of the three functions of a state machine according to the Specification: "the state machine supplies a list of commands which can be executed next." (Specification at page 10, lines 13-14) Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 7.

Claim 8. Claim 8 claims use of a state machine by virtue of its dependency on Claim 7, which depends from Claim 6:

The method of claim 7, where the displayed commands are selected for display based on the user's role within the business process, the context of the business process, and the state of the business process.  
(Claim 8, lines 1-3) In addition, Claim 8's claim of "displaying to users a list of possible commands to be issued by the user as part of the business process" directly relates to one of the three functions of a state machine according to the Specification: "[t]his list can be returned as a set of options (for example, as a web page) to the user with the appropriate button/links to the valid commands." (Specification at page 10, lines 14-15) Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 8.

Claim 9. In rejecting Claim 9, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where the passages of Wong cited by the Examiner do not include any discussion of state machines, Claim 9 expressly claims use of a state machine:

The method of claim 6, wherein different versions of a business process represented as different state machines share software for actions common in the different state machines, and share user interfaces by generating a means of user interaction based on the state machine descriptions.

(Claim 9, lines 1-4) Wong does not teach anything to suggest “wherein different versions of a business process represented as different state machines share software for actions common in the different state machines” or “share user interfaces by generating a means of user interaction based on the state machine descriptions” as in Claim 9. Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 9.

Claim 10. Claim 10 claims use of a state machine by virtue of its dependency on Claim 6:

The method of claim 6, where the execution of different instances of a particular business process is handled by storing a current state for each instance of the business process.

(Claim 10, lines 1-3) In addition, Claim 10’s claim of “where the execution of different instances of a particular business process is handled by storing a current state for each instance of the business process” directly relates to one of the three functions of a state machine according to the Specification: “[t]he state machine provides a formal mechanism for specifying and executing complex (including interrelated) business processes.” (Specification at page 10, lines 16-17) Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 10.

Claim 11. In rejecting Claim 11, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where Wong teaches “using a computing model based on a single integrated database management system” (Wong, Abstract, cited by the Examiner in the Office Action at 6, ¶ 12), Claim 11 claims:

A system for executing a business process represented as a state machine running on a computing system, where transitions of the state machine represent roles of participants in the business process and actions that can be taken as part of the business process, and states of the state machine represent stages in the business process where the business process is waiting for an event to occur, the system comprising:

means for receiving from a user a command representing a desired action to be performed as part of the business process;

means for checking the role of the user within the business process and a context in which the command occurs;

means for, if the command is allowable by a user with the role within the context, executing the command.

(Claim 11, lines 1-11) The portions of Wong cited by the Examiner in support of rejecting Claim 11 discuss use of a database rather than a state machine and therefore do not suggest Claim 11. Wong does not teach anything to suggest states or transitions from states as in Claim 11.

The Examiner, recognizing that Wong does not suggest Claim 11, seeks to rely on Klingman, as well. Klingman, however, teaches the provision of secure communications for the purpose of electronically providing products to a distributor for sale in the open market. (Klingman, column 1, lines 19-23) The portion of disclosure of Klingman relied on by the Examiner in rejecting Claim 11 describes secure communication using a 900 number with the caller ID feature enabled (Klingman, column 10, lines 25-46, cited in the Office Action at 6), without consideration of a state machine. Applicants respectfully

submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 11.

Claim 12. In rejecting Claim 12, the Examiner has incorrectly found that Wong suggests use of a state machine, as discussed above. Where Wong teaches “using a computing model based on a single integrated database management system” (Wong, Abstract, cited by the Examiner in the Office Action at 6, ¶ 13), Claim 12 claims:

A computer program product in a computer readable medium for representing a business process within a computing system, the computer program product comprising:

first instructions for defining the business process using a state-machine based representation where transitions of the state machine represent roles and actions, and states of the state machine represent stages in the business process where the commerce system is waiting for an event to occur;

second instructions for identifying the actions that participants with particular roles can perform at particular stages of the business process by corresponding state in the state machine and out-going transitions from that state.

(Claim 12, lines 1-10) The portions of Wong cited by the Examiner in support of rejecting Claim 12 discuss use of a database rather than a state machine and therefore do not suggest “defining the business process using a state-machine based representation where transitions of the state machine represent roles and actions,” “states of the state machine represent stages in the business process where the commerce system is waiting for an event to occur,” or “identifying the actions that participants with particular roles can perform at particular stages of the business process by corresponding state in the state machine and out-going transitions from that state,” as in Claim 12. Wong does not teach anything to suggest Claim 12.

The Examiner, recognizing that Wong does not suggest Claim 12, seeks to rely on Klingman, as well. Klingman, however, teaches the provision of secure communications for the purpose of electronically providing products to a distributor for sale in the open

market. (Klingman, column 1, lines 19-23) The portion of disclosure of Klingman relied on by the Examiner in rejecting Claim 12 describes the use of a software process rather than a state machine. (Klingman, Figure 2; Klingman, column 9, line 64 – column 12, line 6). Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 12.

Claim 13. Where Wong teaches “using a computing model based on a single integrated database management system” (Wong, Abstract, cited by the Examiner in the Office Action at 7, ¶ 14), Claim 13, as currently amended, claims using a state machine as follows:

A computer program product in a computer readable medium for executing a business process within a computing system, said business process being represented as a state machine running on said computing system, the computer program product comprising:

first instructions for receiving from a user a command representing a desired action to be performed as part of the business process;

second instructions for checking the role of the user within the business process and a context in which the command occurs;

third instructions for, if the command is allowable by a user with the role within the context, executing the command.

(Claim 13, lines 1-9) The portions of Wong cited by the Examiner in support of rejection discuss use of a database rather than a state machine and therefore do not suggest Claim 13.

The Examiner, recognizing that Wong does not suggest Claim 13, seeks to rely on Klingman, as well. Klingman, however, teaches the provision of secure communications for the purpose of electronically providing products to a distributor for sale in the open market. (Klingman, column 1, lines 19-23) The portion of disclosure of Klingman relied on by the Examiner in rejecting Claim 13 describes secure communication using a 900 number with the caller ID feature enabled (Klingman, column 10, lines 25-46, cited in the

Office Action at 6), without consideration of a state machine. Applicants respectfully submit that neither Wong nor Klingman suggests the use of a state machine to represent business processes as claimed by Claim 13.

Conclusion

In view of the foregoing, it is respectfully requested that the application be reconsidered, that Claims 1-13 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 50-0510 (IBM-Yorktown).

Respectfully submitted,



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